

54. (New) The biosorbent composition of claim 52 wherein said support material comprises ceramic alumina, ceramic silica or both.

55. (New) The biosorbent composition of claim 54 wherein said support material is ceramic alumina, ceramic silica or a combination thereof.

56. (New) The biosorbent composition of claim 54 wherein said support material is perlite.

57. (New) The biosorbent composition of claim 52 wherein said exterior coating is exposed to a fluid environment.

58. (New) The biosorbent composition of claim 52 wherein said chitosan is in gel form.

#### **REMARKS**

Claims 1-7, 20, and 23 were previously canceled (Response 6/17/03). Claims 40-49 have been withdrawn. Claims 8, 15 and 21 have been amended. New claims 52-58 are presented. Accordingly, claims 8-19, 21, 23-39 and 52-58 are presently pending. No new matter has been added.

#### Election/Restriction

The Office alleges that claims 40-49 are directed to an invention that is independent or distinct from the invention originally claimed. Applicant hereby withdraws claims 40-51

(previously misnumbered as claims 40-49, to which the Office refers) without prejudice or disclaimer. Accordingly, this rejection is rendered moot.

35 U.S.C. § 102(b) & § 103

Claims 8-11, 13, 15-19, 21, 25-28, 32-35 and 39 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Portier (US Patent No. 4,775,650).

Claims 14, 23, 30, 31 and 36-38 stand rejected as allegedly anticipated by Portier, or alternatively, as allegedly obvious over Portier.

Claims 12, 24 and 29 stand rejected as allegedly obvious over Portier in view of Ostreicher (U.S. Patent No. 4,321,288).

The following arguments are intended to address each of the above rejections. Claim 8 has been amended to require an acid-treated ceramic or perlite support. The biosorbent composition is prepared by pretreating the ceramic support material with acid. All of the rejected claims depend from claim 8.

To anticipate a claimed invention under 35 U.S.C. § 102, the single prior art reference must teach each and every element of the claimed invention. Dayco Products, Inc. v. Total Containment, Inc., 66 U.S.P.Q.2d 1801, 1809 (Fed. Cir. 2003). Portier does not teach an acid-treated ceramic or perlite support material. In Portier, the “particles of diatomaceous earth were immersed at ambient temperature in a chitinous solution of 300 CPS viscosity...separated...and then dried...over a period of 24 hours.” (col. 6, lines 35-40). In the present invention, the ceramic or perlite support is pretreated with acid. The claimed composition differs from the composition in Portier as a result of this pretreatment of the support with acid prior to coating the support with chitosan. The treatment changes the property of the support. The resulting

biosorbent composition can absorb heavy metals more effectively than the biosorbent composition in Portier. Applicant submits that Portier does not anticipate the claimed invention. Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 102.

Portier, either alone or in combination with Ostreicher, does not render obvious the claimed invention. To establish a *prima facie* case of obviousness, there must be 1) a suggestion to combine or modify, 2) a reasonable expectation of success and 3) the references must suggest all of the claim limitations. MPEP § 2143. Portier does not teach an acid-treated ceramic or perlite support. Ostreicher does not cure this deficiency in Portier. Ostreicher does not teach an acid-treated perlite or an acid-treated ultra fine silica. Rather, Ostreicher treated the perlite or ultra fine silica with a melamine-formaldehyde cationic colloid to reduce the negative charge on the surface of the perlite or ultra fine silica, thereby improving the electrokinetic capture of fine particles. The acid treatment in the present invention results in a biosorbent composition that can absorb heavy metals more effectively than the compositions taught in either Portier or Ostreicher. Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 103.

## **CONCLUSION**

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant, therefore, respectfully requests that the Office reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. If the Office believes, for any reason, that personal communication

will expedite prosecution of this application, he is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,



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